

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 2, 3, 6-10, 12, 13 and 16-19, and AMEND claims 1, 4, 5, 11, 14 and 20 in accordance with the following:

1. (Currently Amended) An etching apparatus for a semiconductor wafer, comprising:
- a vacuum chamber;
 - a support for the semiconductor wafer in the chamber; and
 - a gas injector,
- wherein the gas injector comprises:
- ~~a first gas supplier,~~
 - ~~a second gas supplier independently providing gas from the first gas supplier,~~
 - ~~a gas distributor plate having an upper central zone and an upper edge zone and a lower central zone and a lower edge zone, and~~
 - ~~a showerhead opposing the gas distributor,~~
- wherein an amount of reaction gas supplied to the upper central zone and the upper edge zone of the gas distributor is independently controlled
- a gas supplier including a first gas supply hole and a second gas supply hole;
 - a gas distributor plate having a plurality of distribution holes formed therein, the gas distributor plate being positioned opposite and below the gas supplier and forming a first gap therebetween;
 - a first loop-type partition wall formed in the first gap between the gas supplier and the gas distributor plate, the first loop-type partition wall forming a first central zone and a first edge zone, the first central zone being connected to the first gas supply hole and the first edge zone being connected to the second supply hole;
 - a showerhead connected to the vacuum chamber, the showerhead being positioned opposite and below the gas distributor plate and forming a second gap therebetween;
 - a second loop-type partition wall formed in the second gap between the gas

distributor plate and the showerhead, the second loop-type partition wall forming a second central zone and second edge zone corresponding to the first central zone and the second edge zone,

wherein an amount of reaction gas supplied to the first central zone and the first edge zone through the first and second gas supply holes of the gas supplier is independently controlled.

2-3. (Cancelled)

4. (Currently Amended) The etching apparatus according to claim 31, wherein the amount of reaction gas supplied to the gas injector is controlled to affect at least one of uniformity of density of plasma, deposition speed, and etching speed ~~is controlled~~.

5. (Currently Amended) The etching apparatus according to claim 1, wherein a plurality of ~~the~~ gas distributor plates are provided between the gas suppliers and the showerhead.

6-10. (Cancelled)

11. (Currently Amended) The etching apparatus according to claim 61, further comprising an MFC (Mass Flow Controller) independently controlling amounts of reaction gases respectively supplied into the first central zone and the first edge zone.

12-13. (Cancelled)

14. (Currently Amended) The etching apparatus according to claim 61, further comprising a control valve independently supplying the reaction gas into the first central zone and the first edge zone.

15. (Original) The etching apparatus according to claim 14, wherein the control valve is controlled automatically.

16-19. (Cancelled)

20. (Currently Amended) The etching apparatus according to claim 9~~1~~, wherein the gas distributor plate contains ~~aluminum~~aluminum alloy, and the showerhead contains silicon.

21. (Withdrawn) A method of controlling uniformity of factors contributing to uniform etching of a semiconductor wafer, comprising:

supplying a reaction gas from first and second gas suppliers;

flowing the supplied reaction gas from the first supplier into a first central zone in a first gap between the gas suppliers and a gas distributor;

flowing the supplied reaction gas from the second supplier into a first edge zone in the first gap;

flowing the gas from the first central zone into a second central zone of a second gap between the gas distributor and a showerhead;

flowing the gas from the first edge zone into a second edge zone of the second gap;

injecting the gas from the second central zone into the chamber; and

injecting the gas from the second edge zone into the chamber.

22. (Withdrawn) The method according to claim 21, further comprising:

applying RF power to the gas suppliers;

forming the gas distributor as an upper electrode and a support holding the wafer as a bottom electrode;

converting the reaction gas into plasma using the upper and bottom electrodes; and

ejecting a flue gas after etching.

23. (Withdrawn) The method according to claim 22, further comprising independently controlling a supply of reaction gas into the central zone and edge zone of the chamber.

24. (Withdrawn) The method according to claim 23, wherein independently controlling the supply of reaction gas comprises increasing an amount of reaction gas in a zone having less gas and decreasing an amount of reaction gas in a zone having more gas.

25. (Withdrawn) The method according to claim 24, wherein the independently controlling the supply of reaction gas comprises:

heating a fluid by heating material positioned in the path of the fluid flow,

detecting a change in temperature,
estimating a speed of the fluid and an amount of the fluid flowing by the detected
change, and
controlling a valve with an electric signal based on the estimated speed and fluid amount.

26. (Withdrawn) The method according to claim 21, wherein the factor controlled contributing to the uniform etching is at least one of density of plasma, deposition speed, and etching speed.

27. (Withdrawn) A gas injector for an etching apparatus, comprising:
a first gas supplier;
a second gas supplier independently providing gas from the first gas supplier;
a gas distributor plate having an upper central zone and an upper edge zone and a lower central zone and a lower edge zone; and
a showerhead opposing the gas distributor,
wherein an amount of reaction gas supplied to the upper central zone and the upper edge zone of the gas distributor is independently controlled.

28. (Withdrawn) The gas injector according to claim 27, wherein the first or the second gas supplier connects to the upper central zone and the other connects to the upper edge zone.

29. (Withdrawn) The gas injector according to claim 28, wherein the upper central zone is connected with the lower central zone and the upper edge zone is connected with the lower edge zone.